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CONSTRUCTION AND RELATED INDUSTRIES

No. 89

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CONSTRUCTION PLANNING AND ECONOMICS

GOSPLAN OFFICIAL DISCUSSES MAJOR CONSTRUCTION TARGETS

Moscow KRASNAYA ZVEZDA in Russian 19 Jan 83 p 2

[Article based on interview with Ya. P. Ryabov, first deputy chairman of USSR Gosplan, by Maj I. Tarasevich, KRASNAYA ZVEZDA correspondent: "Construction Projects for Completion in 1983"]

[Text] What projects will be activated in 1983? What tasks are builders working to perform today? At the request of Maj I. Tarasevich, KRASNAYA ZVEZDA correspondent, Ya. P. Ryabov, first deputy chairman of Gosplan, spoke about this, commenting on the map of projects for completion.

The year 1983 has started off with confidence. The Soviet people are continuing to carry out the decisions of the 26th CPSU Congress and the May and November (1982) Plenums of the CPSU Central Committee through their selfless labor.

The builders have large and crucial tasks to perform this year. The speech of Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, at the November (1982) Plenum of the CPSU Central Committee emphasized the need to increase the efficiency of utilization of the enormous resources the state has allocated to building new production capacities, to construction of housing and cultural and consumer service facilities, to improve the organization and raise the quality of construction and installation work and improve work discipline. "Bringing order into capital construction," Comrade Yu. V. Andropov said, "is one of the central tasks of the national economy."

It is not just a question of the volume of capital construction projects. The technical level of production capacities and structures, thrifty use of every ruble invested in the economy, of every ton of metal and cement, of every working minute, intensification of construction, correct location of the productive forces, and so on, have very great importance.

The army of construction workers numbering in the millions is working this year in the light of the party's larger demands. Particular attention is being paid to speeding up activation of capacities and projects. In 1983 fixed capital in the amount of 125.4 billion rubles will be activated from state capital investments (in 1982 the figure was more than 118 billion rubles). This will make it possible to reduce unfinished construction.

Look at the map of new construction sites. From west to east, from north to south, the entire country is a large construction site. Yet only the most important projects for completion in 1983 are shown on the map.

Let us look at the basic directions of capital construction in the current year.

Our party and its Central Committee are attributing the greatest importance to further development of the country's fuel and energy complex. As noted at the Seventh Session of the USSR Supreme Soviet, the drafting of the country's long-range energy program has now mainly been completed. This program includes re-tooling and development of the petroleum and gas industries, the petroleum refining industry and the coal industry, activation of new fuel and power capacities, and a universal regime of energy resource conservation. In 1983, this is also evident on the map, a weighty contribution will be made to carrying out the energy program. The growth of primary energy resources this year is to amount to about 41 million tons of standard fuel.

Which specific projects will be put into service? The power generating units with a capacity of 1 million kw will begin to supply current at the Zaporozhskaya, Kalininskaya, Kurskaya and Chernobyl'skaya Nuclear Power Plants. A generating unit with a capacity of 1.5 million kw will go on line at the Ignalinskaya Nuclear Power Plant. All of this is in the European part of the country. In the eastern regions, which have abundant reserves of hydropower and coal, thermal electric power stations and GES will undergo further development. Construction of the first GRES at Ekibastuz (coal is being obtained for it by strip mining) and the Surgutskaya GRES, which is fired by gas, will be entirely completed. Two-thirds of the planned growth of electric power output will be attained this year at nuclear and hydropower plants.

The principal growth in petroleum production will be achieved in West Siberia. Its production there will increase nearly 18 million tons over 1982. The capacity of underground and strip coal mines will increase by nearly 20 million tons. In 1983 production of the "blue fuel" will also increase.

The map shows the Urengoy--Uzhgorod transcontinental gas pipeline which is about 4,500 km long; its activation is planned for the last quarter of this year. And the Urengoy--Nizhnyaya Tura--Petrovsk--Novopskov main gas pipeline was to go into operation at the beginning of this year.

Our country needs metal in large quantities. Moreover, metal of high quality, with characteristics given in advance. In 1983 the capacities of ferrous metallurgy will receive a solid addition. There will be a substantial increase in the annual mining of iron ore thanks to the activation of such large mining and ore dressing combines as the Kostomuksha in Karelian ASSR, the Stoylenskiy in Belgorod Oblast, the Kamysh-Burunskiy in Crimean Oblast, the "Kurzhun-Kul" Iron Ore Mine in Kustanay Oblast.

At the Oskolskiy Electrometallurgical Combine in Belgorod Oblast the country's first steel production operation without blast furnaces is to be started up. A unit with an output of 350,000 tons of steel a year will be activated at the Orsk-Khalilovo Metallurgical Combine in Orenburg Oblast.

The planned startup of rolling mills at Zhdanov, Bekabad, Temirtau, Magnitogorsk, and the Pervouralskiy New Pipe Plant in Sverdlovsk Oblast has very great importance to the entire national economy. New coking batteries each with a capacity of 1 million tons will be put into service at the Magnitogorsk Metallurgical Combine and Altaysk Coke and Chemical Plant.

Industry is using products of the chemical industry in an ever more sizable quantity to replace metal. This year the production of plastics and synthetic resins will increase by more than 9 percent: builders are preparing to put new capacities into service. The fertilizer and detergent industry will also be taking on still greater capacity. Nevinnomysk, Dorogobuzh, Kemerovo, Mary, Nizhnekamsk and Angarsk--these are only some of the addresses where new chemical production operations will be put into service.

Activation of new capacities has been provided for in the timber, woodworking and pulp and paper industry. More timber will be cut and more lumber and chipboard will be produced at enterprises of Arkhangelsk and Irkutsk Oblasts, Lithuania, Komi ASSR and Udmurtia. The particularly important projects include the paper production operation at the Svetogorsk Pulp and Paper Combine in Leningrad Oblast and the Syktyvkar Timber and Lumber Complex. Projects for completion in 1983 include new shops of the Brest and First Kishinev Furniture Factories and the Ionava Furniture Combine in Lithuania.

Technical progress, as is well known, is determined by the level of development of machinebuilding. The map shows projects to be completed for the production of steam turbines, large power machines, electric road locomotives, chemical equipment, equipment for oil fields, drilling equipment for geological explorations, metal-cutting machine tools, forging and pressing machines, computer equipment, trucks, lift trucks with internal combustion engines, and excavators. These projects are being built in the cities of Leningrad, Brezhnev, Kharkov, Novocherkassk, Tbilisi, Togliatti and Tallinn, Kurgan and Poltava, Kungur and Baku.

Rail transport plays a particular role in our country's national economic complex. Unfortunately, there are quite a few shortcomings in its operation. In the address delivered by Comrade Yu. V. Andropov at the November (1982) Plenum of the CPSU Central Committee, which was entitled "The 60-Year History of the USSR," much attention was paid to further improvement of the work of railroad workers. They were set a straightforward task in the year which has begun: deliver all the freight of the economy to its destination without interruption and at a uniform pace.

The state is allocating large resources for development of transportation and communications--28.9 billion rubles. In 1983 1,100 km of new rail lines and second tracks will go into service, the branch will receive tens of thousands of freight cars, a large number of locomotives and other equipment.

Projects that will go into service in 1983 include cargo-handling complexes in the Murmansk, Riga, Magadan and other seaports, mechanized docks on rivers, including those in West Siberia, and runways at airports. About 10,000 km of hard-surfaced roads will be built.

And finally, the construction program for 1983 has been drafted and is being carried out in precise conformity with the party's course toward raising in every way the well-being of the Soviet people. In practically all republics there will be new production operations or retooling of existing ones will be completed for the production of cotton fabrics, yarn, hosiery and knitwear, and texturized materials. New weaving operations are being instituted at the Ivanovo Factory imeni 8 Mart, the Novosibirsk Cotton Combine, the Donetsk Textile Combine, and the factory for spinning and weaving silk fabrics from staple fiber at Korbin in Brest Oblast. Large capacities for the manufacture of hosiery are being prepared for startup in Andizhan Oblast and Frunze, capacities for soft leathers in Yerevan, and for sewn garments in Simferopol, Telavi, Yerevan and Tashauz.

Builders will also make a sizable contribution to carrying out the USSR Food Program. New capacities are to be activated for the production of canned fruit and vegetables at the Azov Baby Food Industrial Complex in Rostov Oblast. The map shows the Atyashevo Meat Combine in Mordovian ASSR and the Samarkand Meat Combine. Milk processing plants will be put into operation in Petrozavodsk, Gorkiy, Krasnodar, Sverdlovsk and other cities.

Industrial-type poultry farms, livestock-raising complexes, greenhouses, bread bakeries and elevators will be put into operation. In many settlements there will be additions to the number of stores, freezer plants and markets.

In 1983 housing with a total floor space of 106.6 million square meters is to be put into service. Approximately 10 million persons will improve their housing situation. Buildings are being erected for new schools and children's institutions, hospitals and clubs.

The map of construction sites for completion in 1983 is an extensive one. It does not and cannot show secondary projects. It is a matter of the honor of construction collectives to put them into operation on time or ahead of schedule.

Improvement of the quality and efficiency of construction is one of the important factors in the further growth of the economy as a whole and successful performance of the tasks set construction workers by the 26th CPSU Congress.

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CSO: 1821/73

CONSTRUCTION PLANNING AND ECONOMICS

USSR STATE COMMITTEE ON CONSTRUCTION REVIEWS PROGRAMS

Moscow EKONOMICHESKAYA GAZETA in Russian No 10, Mar 83 p 2

[Review prepared by USSR Gosstroy: "Industrialization of Construction"]

[Text] A comprehensive target and scientific-technical program and eight programs for solving the most important scientific-technical problems have been drafted for the 11th Five-Year Plan and are now being carried out to speed up scientific-technical progress in the construction sector. This will make it possible to concentrate the efforts of scientific, project planning, drafting and construction organizations and material-technical resources on solution of the key problems that ensure a rise of labor productivity, conservation of labor, physical and energy resources, and improvement of the quality of construction.

All construction ministries as well as a number of industrial ministries, and more than 400 various organizations and enterprises are taking part in carrying out these programs. The entire cycle in the creation of new technology has been provided for--from scientific research and design work to series production of the new equipment and application of progressive manufacturing processes. As a rule, then, targets are set for every ministry or department as to the volume (by years) of introduction of pieces of new technology.

The Routes of Progress

The comprehensive target and scientific-technical program is formulated as follows: "Development of progressive processes and industrial methods of construction on the basis of creation and widespread application of efficient building materials, products and fabrications, machines, equipment and tools whose use in construction guarantees a 25-percent reduction of labor intensiveness and a 10-percent reduction of materials intensiveness."

The eight scientific-technical programs are supposed to promote the solution at a qualitatively new level of such important problems as these:

- i. the shaping of industrial parks and master plans of enterprises, economical types of general-purpose buildings and installations with wide application of three-dimensional units, large-scale elements completely ready for construction and a substantial reduction of equipment for hoisting and moving materials;

- ii. the master chart of settlement in the USSR over the period up to the year 2000;
- iii. new types of residential buildings and public buildings with improved conditions for living, cultural and consumer services and technical-and-economic indicators of construction and service;
- iv. the building of hydroelectric power stations under problematical natural and climatic conditions and also hydroelectric power stations with storage reservoirs and power complexes;
- v. construction of thermal and nuclear power stations with capacities up to 7 million kw, transmission lines and substations for voltage up to 1,500 kv;
- vi. fully mechanized technology for rapid construction of rail lines and installations (including the BAM [Baykal--Amur Main Rail Line]);
- vii. rapid construction of highways;
- viii. construction of new seaports and reconstruction of existing ones.

Carrying out the comprehensive target and scientific-technical program and the programs for solving the most important scientific-technical problems in the construction sector will make it possible between 1980 and 1985 to save 1.4 million tons of steel, more than 3 million tons of cement, and about 8 million tons of standard fuel. The labor of more than 300,000 persons will be saved.

Along with the tasks of technical and economic progress, major social problems are being solved. For instance, under the scientific-technical program for industrial buildings measures have been envisaged for further improvement of working conditions (heating, lighting and ventilation), for making the environment healthier at enterprises and industrial complexes, and for the architectural expressiveness of the interiors of industrial buildings and their external appearance. Programs for housing and public works construction and urban construction outline steps toward further improvement of conditions for residents, improved comfort in residential buildings and public buildings, a more healthy urban environment, and achievement of greater architectural expressiveness of individual buildings and entire complexes.

Application in Practice

Report data indicate that the assignments and stages of the scientific-technical programs for construction are by and large being carried out. Over the last 2 years of the 5 year plan quite a few highly effective innovations have been created in the construction sector under the comprehensive target program.

A low-temperature technology is being introduced for synthesis of alinite cement, which makes it possible to reduce fuel and energy consumption 20-30 percent and to raise the output of present units 30-40 percent. In 1983 and 1984 a number of production lines at cement plants will undergo reconstruction on this basis. The technology of industrial production of effective types of

high-grade cements which impart stress and have particularly fast setting time is affording the possibility of reducing fuel and energy consumption by 15-20 percent and increasing labor productivity in their use 30-40 percent. The output of the economical product has already begun in accordance with this technology at enterprises.

New types of reinforced-concrete fabrications have been put into production and are being applied in construction, including the following:

- i. more than 370,000 square meters of "span" slabs of the "KZhS" and "P" type in the sizes 3 x 18 and 3 x 24 meters, which provide a saving of up to 15 percent on steel and 30 percent on concrete over the traditional floor slabs;
- ii. more than 1 million cubic meters of fabrications made of lightweight concrete, including porized keramzit-concrete with a density of 800-900 kg per cubic meter, keramzit-perlite-concrete (800 kg per cubic meter) and arbolite-concrete (700 kg per cubic meter);
- iii. box-type decking 12 and 18 meters long in the roofs and between stories of production buildings of textile enterprises (80,000 square meters);
- iv. 440,000 cubic meters of fabrications using the superplasticizer C-3, which reduces cement consumption by 5-10 percent.

Progressive metal fabrications have begun to be widely used: for example, roof trusses of bent-welded shapes, trusses with ribs of wide-flange I-beams and a lattice of bent-welded shapes, new types of improved structural fabrications made from rolled shapes and skin roofs of industrial buildings made from thin sheet. Innovations of this kind are making it possible for enterprises to undergo reconstruction without stopping production.

The production of new models of construction machines has been organized. They include bulldozers with a ripper mounted on crawler tractors, pipe-laying machines with a lifting capacity of 50 tons, earth-moving and scraping machines, hydraulic hammers for excavators with an impact force of 120 and 900 kg per centimeter, mobile S0-115 paint sprayers to fully mechanize painting operations.

Much has also been done under the programs for solving the most important scientific-technical problems. In the field of industrial construction principles have been devised for drawing up master charts of enterprises in the mining and chemical industry to take into account the creation of low-waste production. An innovation has been used in project plans of a complex for production of fertilizers and building materials for the Aktyubinsk Phosphate Rock Deposit.

New types of one-story industrial buildings with new space layout and design features are being introduced into the practice of project planning and construction. They include fully prefabricated built-in rooms and reduction of the size of cellars, independent structures for supporting overhead traveling cranes or their replacement by outdoor types of materials-handling equipment,

improved lighting and ventilation, and more expressive interiors and external appearance of structures. All of this can be seen in construction of the projects of the Krasnoyarsk Heavy Excavator Plant and a number of other enterprises.

Since 1981 the transition has been under way to large-scale construction of residential and public buildings with improved space layout and design features, greater comfort and conveniences and more expressive architecture. In the 2 years of the 5-year period which have passed such buildings have been delivered with a floor area of 43 million square meters--approximately one-fifth of all the housing put into service in that period.

The cascade method of building large hydroprojects of the Angara-Yenisey and Naryn cascades have been developed for construction of power facilities; this method was used for rapid erection of the Kurpsayskaya GES and work has begun on the Tashkunyrskaya GES on the Naryn River.

Technology for high-speed erection of dams is being worked out at the GES on the Ingura using conveyor equipment, and a method is also being devised for dynamic packing of binder earth in erecting dams and weirs during construction of the Zagorskaya Hydroelectric Power Plant with storage reservoir.

New lightweight fabrications are being introduced for hydraulic engineering tunnels in building the Baypazinskaya and Irganayskaya GES.

New fabrications of prefabricated and cast-in-place reinforced wall panels with nonwelded joints are being used successfully in building the Zaporozhskaya, Balakovskaya, Rovenskaya and other nuclear power stations.

They have poured the concrete of cast-in-place and combined prefabricated and cast-in-place structures with concrete pumps and forms raised in place mechanically, as well as the technology for prestressing the protective shells of nuclear power stations with VVER-1000 reactors.

Fabrications of combined prefabricated and cast-in-place bridges of small and medium span on column foundations and supports are already being widely used on the structures of the BAM. Methods of construction of the roadbed of highways with layers of synthetic materials and construction of asphalt-concrete roofs using the screenings of crushing and the mineral waste of industry have given a good account of themselves.

Performance of the assignments of the comprehensive target program and the other scientific-technical programs in the construction sector in 1981 and 1982 have made it possible to achieve an economic benefit on the order of about 650 million rubles, to save more than 350,000 tons of steel, 1 million tons of cement, and more than 2.7 million tons of standard fuel per year. The average annual labor saving in conventional terms is 110,000 man-years.

What Is Detracting From the Effect

We should also note certain shortcomings that have been discovered as the programs have been carried out. After all, the effectiveness of their performance could have been even greater.

Unfortunately, not all construction and other ministries and departments carrying out the programs feel the same responsibility for the destiny of the programs as for other sections of the state plan. Even reports on progress in fulfilling the assignments of the programs are submitted late.

Full use is not being made of opportunities for broader application of innovations. For instance, lightweight fabrications of foundation slabs have been introduced by the USSR Ministry of Rural Construction in a volume that is one-fourth as much and in the USSR Ministry of Industrial Construction one-tenth as much as is technically and economically feasible. Effective and economical fabrications based on box-type decking are gaining prestige slowly. The volume of their use should be increased 7-8-fold.

Experience has shown that in drafting assignments of the programs certain ministries which are to carry them out were unjustifiably cautious in determining the volume of application. For example, the assignment envisaged mainly for the Ministry of Transport Construction concerning the use of economical new bituminous emulsions and mineral emulsion mixtures in laying asphalt-concrete roofs was so low that it was overfulfilled several times over within the 2 years.

Some assignments of the program have gone unfulfilled. The USSR Ministry of Construction has not done the tuneup and adjustment work on a complex near completion of the large-panel housing construction enterprise in Gorkiy and did not meet the deadline for its activation. The ministry (deputy minister A. Yakovlev) did not allocate all the capital investments for this project, and the organization of operations at the construction site was also unsatisfactory.

The USSR Ministry of Machine Tool and Tool Building Industry (deputy minister N. Panichev) and Ministry of Installation and Special Construction Work (deputy minister A. Chubukov) failed on delivery of new equipment for machining rolled shapes at plants for manufacturing metal fabrications. The Ministry of Construction, Road and Municipal Machinebuilding (deputy minister Ye. Spiridonov) has been slow in bringing the concrete pumps they created up to standard. Through the fault of the USSR Ministry of Construction Materials Industry (deputy minister N. Kabanov) assignments were not met for creating equipment for the production of linoleum by the roller-calendar method and fiberglass.

In 1982 the Ministry of Construction, Road and Municipal Machinebuilding (deputy minister Yu. Govora), Ministry of Machine Tool and Tool Building Industry (deputy minister M. Cheburakov) and Ministry of Chemical and Petroleum Machinebuilding (deputy minister N. Arkhipov) were to have manufactured the prototype of a production line for grinding, painting and cutting asbestos-cement sheet. Because of a lack of coordination of the participants, this work has not even begun yet.

Putting order in capital construction, as noted at the November (1982) Plenum of the CPSU Central Committee, is one of the central tasks of the national economy. The importance of the advances of science and technology is especially great here. After all, the technical level of future production depends to no small degree on how a project is built. Everyone involved in the scientific-technical programs in the construction sector should bear that constantly in mind.

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CONSTRUCTION PLANNING AND ECONOMICS

SKEPTICISM PREVAILS IN PLANS FOR SOLAR BUILDINGS

Dushanbe KOMMUNIST TADZHIKISTANA in Russian 12 Dec 82 p 2

[Article by I. Novikova: "Who Will Build the Solar House?"]

[Text] Hardly a day passes that reports do not appear in the press about how yet another solar installation has begun to operate somewhere in the country. Solar energy which is free, heating without waste, air free of smoke.... But what about us in Tajikistan, a region with unlimited sun? Only after lengthy inquiries was I able to discover a population of some five solar installations in operation.

What is happening in the republic, why is a remarkable technical idea not being applied when it is especially topical from the standpoint of fuel economy and power conservation?

Here is a typical example. A year ago Z. Kabilov, of the Physical Engineering Institute of the Academy of Sciences, P. Lavrinenko and F. Akhmedov, associates of the polytechnical institute (all three of them specialists in solar engineering) went to N. V. Machigin, chief of the republic's Administration of the Hydrometeorological Service, with a sketch for heating and hot-water supply of the "Murgab" weather station. We should note that this high-mountain station in the Eastern Pamirs needs heating 10 months in the year and is in a zone of high solar radiation. But even that is not the main thing. It costs twice as much to ship in coal. And here is the obvious benefit: If during planned repairs the small house undergoes elementary additional construction, a fair-sized fuel saving could be achieved.

For the scientists installing a solar collector at at least one small house in the Eastern Pamirs would mean the possibility of practical application. Key officials of neighboring organizations, for example, the ORS [worker supply department] of Minavtotrans [Ministry of Motor Transport] or sovkhoz directors will look at it and say: These are not just empty words, in actuality the heating is done for free, this can be boldly introduced....

Those were the arguments of the heat physicist. Nor is it an accident that they turned to the hydrometeorologists. Experienced specialists who could take readings from the instruments of the experimental solar installations and thereby help the scientists in gathering the material they need very much work at the weather stations.

One can only guess why the proposal of the solar engineers was not supported by the key officials of the hydrometeorological service. Possibly because the costs of shipping in the fuel, even coal lifted by helicopter (at which point it is worth its weight in gold), are provided for many years in advance in plans. Wasting time with someone else's experiment would mean changing procedures that have become customary, punching holes in paper and collating it. In short, it would be troublesome. It seems that they showed the traditional caution toward everything new: It might turn out all of a sudden that things would not be better, but worse? Incidentally, fears in this case are not groundless, and we'll be getting to that.

This kind of situation is typical of practically all organizations to which the specialists of the polytechnical institute turn with their technical aid. And yet thousands of institutions and private dwellings in rural areas for which construction of a unified heating network is difficult could take advantage of solar heating and air conditioning. It is especially important and simply indispensable to convert kitchens and shower rooms to solar energy in clean air zones, that is, in Pioneer camps, preventoriums and rest homes. But as soon as there is mention of an experiment, which naturally needs to be subsidized, a wall of indifference springs up everywhere.

Incidentally, one organization did after all respond. But who? The neighbors--"Sredazirsovkhозstroy" [further expansion unknown], whose subdivisions are developing the Asht area. Lavrinenko and three assistants equipped a solar shower for the workers developing the virgin land in a matter of days. This was no longer a picture in a book, nor even an experimental model. The shower with solar-heated water worked and did its own advertising.

So, there are few enthusiasts about solar installations, practically none. But let us suppose that tomorrow orders are sent out: We want to take advantage of solar energy. What then? Well, nothing. The republic is not ready for practical steps toward widespread introduction of solar radiation engineering. Let us see what has been done in our republic so we have a clearer idea of the real state of affairs.

Two years ago a special laboratory, which we have already mentioned, was created in the Institute of Physical Engineering of the Academy of Sciences, and it has been headed by Z. Kabilov. It immediately received four buildings. Now the results can be seen in a small experimental area which the institute has. These include, first of all, solar water heaters developed on order for the republic's Ministry of Rural Construction and Ministry of Municipal Services. Specific facilities were designated for them, including a large boiler installation in Leninabad which serves an entire microarea. The solar radiation engineering introduced there will make it possible to do without fuel 6 months a year. A second system is an air heater. When moved to the cotton gin in Ayninskiy, it will make it possible to save a third of the kerosene used every year in the final drying of cotton. A third development is a solar-powered refrigerator for fruit and vegetable storage facilities.

Incidentally, we should note that the development projects of Tajikistan's physicists do not duplicate the work of scientists in Turkmenia or Uzbekistan.

They are all integral parts of the nationwide state program, whose ultimate goal is the actual introduction of solar radiation engineering.

So much for installations for production purposes. But what about the use of solar energy for heating, air conditioning and hot water supply of dwellings?

In principle the "solar house" has not been a fantasy for a long time, but reality. It has been proven that it is not only possible, but advantageous to heat living space with steam solar heat and cool it in the hot days of summer with the same system. We refer skeptics to the conceptual design and model of a rural house which was exhibited for the first time at a recent conference on fuel conservation. The architect G. Khamedov, jointly with associates of the laboratory for solar radiation engineering proposed a five-room house with an area of 80 square meters. Its solar collectors are located on the south side and take up the same area. According to the calculations of the scientists, that is enough of these glass collectors for the housewife to have hot water year-round, for it to be warm in the winter and cool in the summer.

Aside from that version, the institute Tadzhikgiprostroy [further expansion unknown] has already designed a solar hot-water supply in the "Zimchurud" rest zone. The basis for this was the Odessa nursery school with a capacity of 300, where 220 collectors were placed on the roof. The institutes Tadzhikgiproproprom and Tadzhikgiprosel'stroy and the project planning organization "Kommunprojekt," in the opinion of their chief engineers, are ready for work of this kind.

So, four collectives in the republic (according to incomplete calculations) are capable of undertaking to design buildings with solar energy systems. The specialists of the Institute of Physical Engineering and the polytechnical institute will assume responsibility for the "filling." But, as we already know, the problem is who is to ask for the first "solar house" to be made? For without a customer--a ministry or ispolkom--the idea is only a nice dream.

It would be logical to expect that Gosstroy, which defines construction policy in the republic would assume the role of promoter. But it becomes obvious from a conversation with its representatives that skepticism prevails even here.

They refer to the general low level of culture where they will be operated. The large sheets of glass will be broken. On that basis street lighting also needs to be given up--the lamps also get broken. In the final analysis people's ability to handle the solar collectors will come in time.

They also mention the unsuccessful attempt to build a solar house on a Yavan sovkhoz--an argument with more weight. However, in the opinion of the solar radiation engineers, the design of the little house in Yavan, drawn up by Tadzhikgiprosel'stroy a few years ago, contained serious errors. Should the idea be rejected in principle solely on that basis?

Aside from Gosstroy, there is an evident need for interest in conducting the experiment to be shown by those ministries which will benefit from its results. The Ministry of Agriculture and Ministry of Reclamation and Water Resources could build the first series of only four or five houses on a cooperative basis. Nor would it hurt to have the participation of the ispolkom of the Gorno-Badakhshan Autonomous Oblast, which is very high in the mountains and has abundant sunlight.

Since Gosstroy itself does not believe very much in its own promotion, there are practically no requests for the designing of solar systems. And since there are no project plans--there is nothing to order equipment for either. So there is no reason to expect changes of any kind in the near future. At the end of the current 5-year period only six collectors have been ordered from the plant in Saransk.

The question of orders is not an idle one. If there is a serious interest in using solar energy on a wide scale, then it makes sense to think even now about equipment. Ideally it should be like this: If you want to install a solar module, you go to a store and buy it the way you now buy a refrigerator or air conditioner. But that is still far off, and precisely for that reason it is so important to know exactly where to get the principal elements of solar systems, the solar collectors.

The republic's Gosplan made an estimate of the need for collectors for the load on that plant in Saransk. The number obtained is so far small--10,000 square meters for next year and another 5,000 up to the end of the 5-year period. Moreover, these collectors with water as the circulating medium perform only one function--hot-water supply. They are not suitable for heating and air conditioning. Consequently, all hopes cannot be put on the supplier in Saransk. What is more, if we take into account the overhead, the cost of these fabrications proves to be disproportionately great.

There is a question of setting up a solar products industry here in our republic. In the opinion of the specialists, solar collectors using air as the circulating medium and manufactured by machinebuilding and metal-manufacturing enterprises in Tajikistan would be considerably cheaper and, the most important thing, more versatile. Still more promising is to look to the Tajik Aluminum Plant, where, using the most progressive technology (it has been proposed by the Leningrad Institute of Physical Engineering of the USSR Academy of Sciences), it is possible to make collectors from complex aluminum shapes. These arrays can fulfill all the functions desired simultaneously.

There are many problems, and they are not simple ones. But they have to be solved, they will not go away from our doorstep. Today no one likes any longer the protracted dilly-dallying about the evolution of solar energy. The republic's specialists are capable of setting their own pace in the solar relay race, indeed a fast pace, if they have the vigorous support of authorities in the economy.

7045
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CONSTRUCTION PLANNING AND ECONOMICS

NEW BOOK EXAMINES CREDIT FINANCING OF CONSTRUCTION

Moscow FINANSY SSSR in Russian No 2, Feb 83 pp 70-72

[Review by R. K. Belkina, candidate of economic sciences, of book "Kredito-vaniye podryadnykh stroitel'nykh organizatsiy" [Credit Financing of Organizations Operating as Construction Contractors] by M. P. Berezina, Finansy i statistika, Moscow, 1982, 93 pages]

[Text] The present stage of development of capital construction in the USSR is characterized by a radical restructuring of the credit relations of organizations operating as construction contractors with the institutions of the bank. It is highly interesting in this connection to summarize the experience gained in the credit financing of construction contractors and on that basis to determine ways in which the banks can influence construction more effectively. The book under review will be of help in deepening our understanding of the processes taking place in construction economics and in the credit financing of contractors.

The scheme adopted for presentation of the aspects of credit financing is to be applauded. The first three chapters are devoted to the general aspects: the organization of the construction industry, working capital and sources of their formation in that sector, and also analysis of the principal credit financing terminology. Chapters 4, 5 and 6 (taking up 56 pages) are devoted to a detailed examination of the most important types of credit used by construction contractors. In Chapter 7, the concluding chapter, there is an exposition of the content of the bank's work with economic statistics to monitor financial and economic performance and the differentiated regime in credit financing of construction contractors. This order of presentation makes it possible to correctly conceive actual practice in the credit financing of construction contractors even for someone who is not sufficiently versed in the specialized matters. The proposals for improving the management of credit by bank institutions are also interesting. The recommendations contained in every chapter are suitable to this task in one degree or another, though some of them are debatable.

The analysis of the formation of working capital, whose movement is the basis for the functioning of credit, is successful. The dynamic pattern of the working capital of construction contractors and sources of its formation is briefly and clearly shown in a mutual linkage with improvement of settlement for

construction and installation work, and a description is given of the present status and of individual shortcomings in their organization. At the same time, in view of the rather extensive literature on this subject, there should have been more detailed discussion on peculiarities which have so far received little study concerning the composition and structure of working capital and its sources for various types of organizations associated in the construction industry: general construction organizations and specialized organizations, administrations for mechanization and for making up production technology, and construction combines building housing and plants in rural areas. The author noted only the importance of an examination of these problems that would make it possible to determine in which sections of economic activity of these organizations the credit method of furnishing money should be used and expanded first.

The foundations of credit financing are tersely set forth, given essentially in the form of a diagram: the essence of bank credit, its functions and principles, its types and purposes for which it is extended, the procedure for regulating the amount of credit and methods of granting it, the forms of loan accounts, and organizing the monitoring of credit financing. This scheme is set down as the basis for the entire text that follows. M. P. Berezina draws theoretical conclusions which are distinguished by their innovativeness concerning the specific nature of the collateral of credit invested in the working capital of construction contractors. These conclusions pertain at the same time to the investment process in the national economy. As we know, the performance of construction and installation work is a part of the latter and moreover a determining part at the present time. One can concur in the conclusion that in the credit financing of construction contractors the methods of extending credit on the basis of turnover and remainder should be combined, as should the individual elements of the special and simple loan accounts. This conclusion is argued convincingly in the discussion of the various types of collateral securing the credit (pages 42-43 and 59-60).

Much attention is paid in the book to credits in the production sphere: for outlays represented by work in process and to cover production stocks. This is quite right, since at the present time more than 90 percent of the costs of work in process are financed with credit. Credit covering production stocks also has an important role, since the materials intensiveness of the construction process is high.

The book shows the complexity of the collateral of credit granted to cover unfinished construction work, which embodies five types of outlays, and moreover they are not confined to the production sphere, but also lie in the distribution sphere. The procedure for estimating these costs in connection with credit financing and for calculating them in the stages of the planning and actual issuance of the credit is discussed. The numerical examples aid in understanding of the rather complicated procedure for extending credit to finance work in process. Having analyzed the principal defects in the system of credit financing work in process, the author outlines ways of correcting them.

Yet not every proposal along those lines is beyond dispute. In our view the proposal that work in process should be estimated in connection with credit

financing according to actual cost within the limits of the planned cost instead of on the basis of the estimated cost, which is now in effect, is inapplicable. This would complicate the system of accounting, and, above all, would deprive construction contractors of a source for covering certain planned outlays, mainly the expenditure of the material incentive fund on the basis of an advance.

An important shortcoming of this section of the book is the weak treatment of the present practice of mobilizing resources for the credit financing of work in process--resources of clients temporarily made available in connection with settlements for the finished product in commodity form. The adverse aspects of the procedure in effect for the accumulation of resources, the tying up of funds, difficulties of using them as sources of credit financing, and the increase of technical work are demonstrated. But the proposal about doing away with accumulation altogether, a prerequisite for which, in the author's opinion, might be amending the system for planning capital investments and their sources by client organizations, is altogether unconvincing. After all, even in that case it would still be necessary to mobilize diverse sources for financing capital investments.

A sizable portion of the book is devoted to an analysis of credit in the distribution sphere, which occupies an important place in the credit and settlement relations between the bank and construction organizations and which have been little treated in the economics literature. M. P. Berezina backs up a number of interesting proposals for improving settlement and payment credits, including a proposal concerning the granting of credit without limit by Stroybank institutions to cover settlement documents en route and concerning the more efficient and effective use of payment credit. The inadequate role of planned special-purpose loans in forming remainders of physical inventories of the construction industry, which causes an increase in the need for payment credit for settlement with suppliers, is emphasized once again in this connection (as in the passage on the credit financing of production stocks). One would have wished that the author's recommendations on expansion of the practice of extending credit to finance production stocks had been more straightforward and specific.

A certain abstractness is also present in the exposition of the procedure for granting and repayment of credit to cover costs related to preparation of new production operations and putting new products into production. Possibly this has to do with its half-hearted use by construction contractors. Yet this credit has been rather widely developed in industry. It would be wise to take the experience available as the basis for a more thorough substantiation of the importance of this credit to construction and to examine the various situations encountered in practice. In our opinion the role which the author attributes (page 77) to credit for temporary replenishment of a lack of "own" working capital in stimulating technical progress is exaggerated. Since the profitability of many construction contractors is low, the spread of this kind of credit must be limited.

The exposition of the forms and methods of supervision exercised by the banks in connection with the credit financing of construction contractors (prior,

current and subsequent) deserves praise. First (pages 26-29), the author gives a general description of both prior and also current and subsequent supervision and makes the case for their necessity, and then she specifically states the content of these types of supervision in connection with the issuance of various types of credit. Much attention is properly paid to all types of supervision exercised in the credit financing of construction and installation work representing work in process (pages 43-55). The presentation of the forms and methods of supervision is accompanied by examples and an indication of the documents of construction organizations used in checking particular indicators of their performance.

Having presented in detail the interrelated sets of bank incentives and penalties in the process of credit relations with construction contractors, M. P. Berezina notes the substantial development of the differentiated credit financing regime based on improvement of the economic mechanism as a whole. An attempt is made to define certain directions for strengthening the differentiated regime by virtue of more thorough interlinkage of the criteria used in evaluating the performance of the various participants in construction which from the organizational point of view are part of the makeup of the construction industry, mainly subcontractors, makeup organizations and supply organizations. It is proposed that credit incentives not be used, especially such a sensitive incentive as cutting the interest on credit in half for fulfillment of planning targets which are clearly set too low. In our view these proposals deserve attention and should be put to use in the practice of credit operations.

On the whole we can say that M. P. Berezina's book will be useful for a broad range of economists in construction organizations and officials of bank institutions concerned with the credit financing of construction contractors.

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AGRICULTURAL CONSTRUCTION

BSSR GOSSTROY CHAIRMAN TALKS ABOUT RURAL CONSTRUCTION

Moscow SEL'SKAYA ZHIZN' in Russian 5 Mar 83 p 1

[Article by V. Evtuzh, chairman of the Belorussian SSR Gosstroy, candidate of technical sciences (Belorussian SSR): "In a Unified Complex"]

[Text] The decree of the CPSU Central Committee, "On Measures for Providing for Fulfillment of the Plans for the Construction of Residential Buildings and Socio-Domestic Facilities," has found widespread response among rural residents. The article offered for your attention from Belorussia is one of many which are coming into the editorial staff these days.

One of the remarkable features of Belorussia is new construction. Old villages are being rejuvenated before our eyes, and new, well-arranged villages are growing up. During the years of the Tenth Five-Year Plan alone we constructed in villages more than 100,000 apartments, 345 general educational schools, 209 consumer service combines, automatic telephone exchanges with 79,000 numbers, children's preschool institutions, clubs and houses of culture, stores and dining rooms During this time we laid 5,300 kilometers of paved roads and provided gas for 436,600 rural apartments.

There is no doubt that a good deal has been done. But even more difficult tasks have been set for us by the recently adopted decree of the CPSU Central Committee, "On Measures for Providing for Fulfillment of Plans for the Construction of Residential Buildings and Socio-Domestic Facilities." It earmarks clear areas for the fulfillment of the social program of the current five-year program. It is gratifying to note that each year the rates of rebuilding of rural areas increase. Let us also note that comprehensive experimental-demonstration construction has answered many complicated questions.

It was begun in 1969 on 7 farms of the republic: on the Selyuty Sovkhoz in Vitebsk Oblast, Lenino in Mogilev Oblast, Kommunist in Gomel Oblast, and imeni 60-letiye Kompartii Belorusii in Brest Oblast, and the Progress Kolkhoz in Grodno Oblast, and the Chyrvona zmena and imeni Kalinin kolkhozes in Minsk Oblast. These villages became a real school of advanced experience in construction and it is no accident that they are considered the best even outside the republic. The building up of the village Vertelishki of the Grodno

Progress Kolkhoz was awarded the USSR State Prize, and the villages of Oktjabr'skiy of the Vitebsk Selyuty Sovkhoz, Malech of the Berezovo Sovkhoz imeni 60-letiye Kompartii Belorusii, and Sorochi and Redkovichi of the Lyubansk Kolkhoz Chyrvonia zmena were awarded prizes of the USSR Council of Ministers.

While building up these villages we have tested various variants of architectural and planning decisions for rural population points, and have discovered the most acceptable types of residential and public building and efficient forms of organization of private subsidiary farming. Hundreds of villages are already being built up following their example.

Multi-story building was quickly rejected and preference was given to residences of a farmstead type where the best conditions are created for private subsidiary farming and increased comfortability. The republic's Gosplan and Gosstroy have approved one- and two-story buildings as the basis for rural housing construction. On an average for the five years their proportion of the overall volume of construction of residential buildings from state and kolkhoz-cooperative funds will reach 96 percent. Moreover buildings of the farmstead type comprise 74 percent, and three- and four-story residential buildings, including single-section, four-story buildings for small families, do not exceed 4 percent. All the residential buildings that are being constructed are to have running water, sewerage, heating and electricity and gas.

Any building begins with a plan. There are already some to select from. For more than eight decades now the republic has been using dozens of plans of residential buildings, block sections and dormitories, including residential buildings of the farmstead type. These plans are used for series construction of large-panel residential buildings made of keramzit concrete panels and silicate concretes, using brick and gas silicate panels, and large block rooms with walls made of local materials.

The experience in operating experimental villages has made it possible to improve the internal planning of housing, to increase the size of the kitchens, pantries and auxiliary facilities, and to provide ventilated basements for storage of fruits and vegetables. Additional variants of residential buildings have been developed with the installation of Russian stoves, garages and verandas. For all types of building there are structures for maintaining livestock and poultry, feed kitchens, sheds for storing equipment, and garages.

Under the current five-year plan special attention is being devoted to the development of individual housing construction in rural areas and the construction of buildings by rural housing construction cooperatives. Thus Belmezhkolkhozstroy has been entrusted with the construction of buildings for individual builders and the laying out and planting greenery on territories and streets. The general contractors for housing construction cooperatives are subdivisions of the Belorussian SSR Ministry of Agriculture, Belmezhkolkhozstroy and Glavpoles'yevodstroy.

The volumes of housing construction can be increased rapidly on the basis of an all-around rise in the level of industrialization. The main direction that has been taken is large-panel housing construction, whereby the basic list of types and sizes of items makes it possible to vary and construct residential buildings of various types, with various numbers of apartments and with various volume and space decisions. The republic has 6 plants for rural large-panel housing construction. During 1983-1985 it is intended to construct 7,200 apartments in residential buildings of the farmstead type using items that are produced by the enterprises. Rural construction workers will be assisted by existing capacities of city enterprises for large-panel and thick block housing construction. Additionally, plants for reinforced concrete items of the Belorussian SSR Ministry of Rural Construction and Belmezhkolkhozstroy have organized the production of keramzit concrete block panels in order to construct about 5,000 farmstead residential buildings before the end of the five-year plan. The output of wood panel single-apartment buildings is being increased by the Gomel shop for laminated wood designs of the Belorussian SSR Ministry of Rural Construction. Through the efforts of the Belorussian Ministry of Forestry it is intended to manufacture no less than 2,000 sets of wooden frameworks for constructing residential buildings during the five-year plan. Industrialization of the construction of rural farmstead residences by constructing buildings made of solid keramzit concrete using standard shuttering is advanced and effective.

The organizational work conducted in the republic will make it possible to raise the level of prefabrication of housing construction in rural areas from 29 percent in 1981 to 64 percent in the final year of the five-year plan. Architects and builders are striving to make sure that the new settlements are not gray and impersonal.

The comfortability of residential buildings, naturally, depends on the degree to which the surrounding areas are built up and on the provision of municipal and domestic amenities. And this issue is crucial not only for the construction of new villages, but even more so when rebuilding old villages and settlements. It is intended to provide centralized gas for 78,100 apartments under the Eleventh Five-Year Plan, to provide the consumers with a continuous supply of gas in cylinders, and to put running water lines into operation with an overall distance of 2,100 kilometers. Existing systems of heating, water supply and sewerage for rural population points are being changed over in a planned way to village-wide systems, taking into account that this work is to be completed before 1990. The output of apartment heaters for heating both the apartments and water as well as other equipment is being increased.

And, finally, the residential village is not only a residence. The republic is considering in a unified complex all the problems of trade, medical and cultural-domestic service for the rural population and the strengthening of municipal services. During the five-year plan the distance of paved roads will increase by almost 2,500 kilometers, and other important social problems are being solved. All this creates real prerequisites for bringing the living conditions in rural areas closer to those in the city.

HOUSING CONSTRUCTION

RESIDENTIAL HOUSING CONSTRUCTION DECREE

Moscow SOVETSKAYA ROSSIYA in Russian 26 Feb 83 p 1

[Text] The CPSU Central Committee has adopted a decree entitled "On Measures To Guarantee Fulfillment of Plans for Construction of Housing and Social and Consumer Service Facilities."

The decree notes that in accordance with the social program defined by the 26th CPSU Congress, housing and cultural and consumer service construction are being carried out in our country on a broad scale. Since the beginning of the current 5-year period more than 210 million square meters of total floor space of housing have been put into service, the level of amenities of housing has improved, and there have been additions to the network of general public schools, children's preschool institutions, hospitals and polyclinics.

At the same time the work being done in this direction is not fully meeting the requirements of the party as yet. A sizable number of workers are in need of improved housing conditions. Because of the shortage of housing newly built production capacities are not always fully staffed, especially in the regions of Siberia and the Far East.

All of this has occurred because certain leading officials of ministries and departments and union republics have not paid enough attention to this matter.

The CPSU Central Committee regards cases of nonfulfillment of planning targets for housing construction intolerable. Less housing has been built in the 2 years than envisaged by the annual plans. An unhealthy situation is taking shape with construction of children's preschool institutions and vocational and technical schools. Hospitals and polyclinics are being built at a slow pace. The volume of private housing construction is dropping off without justification, especially in rural areas, and housing construction cooperation is developing slowly.

Plans for housing and cultural and consumer service construction are not being fulfilled in Turkmen, Tajik, Moldavian and Kirghiz SSR's, in a number of autonomous republics, krays and oblasts of RSFSR, the Ukraine and Kazakhstan.

As pointed out in the decree, many USSR ministries and departments, communist party central committees and councils of ministers of union republics, party

kraykoms and obkoms, ispolkoms of soviets of people's deputies are reconciling themselves to nonfulfillment of plans for construction of housing and social and consumer service facilities, and they are not issuing severe and fundamental evaluations of cases when the assigned targets are not met. The low quality of construction and finishing work is causing serious concern.

A great deal of responsibility for unsatisfactory fulfillment of plans is borne by the collegiums of construction ministries and by the ministers personally, who have not been concerned enough with housing and public works construction and do not regard this as a matter of paramount importance. USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] and USSR Minpromstroy [Ministry of Industrial Construction] alone fell short in 1981 and 1982 by about 2 million square meters of total floor space of housing. Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises], Minvostokstroy [Ministry of Construction in the Far East and Transbaykal Regions], and USSR Minenergo [Ministry of Power and Electrification] and other ministries have allowed a sizable lag in activation of housing and social and consumer service facilities.

Ministries and departments which are clients are not showing sufficient concern about fulfillment of housing construction plans. Year after year Mingazprom [Ministry of Gas Industry], USSR Minneftekhimprom [Ministry of Petroleum Refining and Petrochemical Industry], USSR Minmyasomolprom [Ministry of Meat and Dairy Industry], Minstankoprom [Ministry of Machine Tool and Tool Building Industry], and other ministries are not seeing that housing is opened to occupancy in the planned amounts. Industrial enterprises, housing and social and consumer service facilities continue to be planned and built without mutual coordination, which causes sizable difficulties in staffing production operations with skilled personnel and large losses of output. USSR Gosplan does not always reflect in its plans the peculiarities of particular industrial regions where the need for housing is greatest.

Attention is called to the need for a substantial intensification of construction of housing and facilities for social and consumer services in rural areas and especially in the Nonchernozem Zone of RSFSR.

USSR Gosstroy, Gosgrazhdanstroy [State Committee for Public Works Construction and Architecture] and certain ispolkoms of soviets of people's deputies are committing important oversights in carrying out plans, in improving the quality of housing and public works construction, and in the project planning and development of cities and settlements. In a number of cities where the workers need housing expensive projects whose need is not pressing, high-rise buildings and custom-design buildings are being built. All of this increases the construction cost and diverts manpower and resources from volume housing construction. The service of the single client in cities is not being refined sufficiently.

The CPSU Central Committee emphasizes that unconditional fulfillment of the 11th Five-Year Plan for construction of housing and cultural and consumer service facilities is a most important task, one that has great sociopolitical importance in the light of the decisions of the 26th CPSU Congress and November (1982) Plenum of the CPSU Central Committee.

Fulfillment of the plan for construction of housing and social and consumer service facilities in 1983 has a determining role in performance of this task.

The CPSU Central Committee has called upon the leading officials of ministries and departments and councils of ministers of union republics to radically alter their attitude toward housing and public works construction. To draft and carry out an interrelated set of measures guaranteeing activation of housing, municipal and social service facilities in the planned amounts. Considerably improve the use of existing capacities for large-panel housing construction. Persistently raise the quality of construction and determinedly put an end to cases of acceptance of housing and social and consumer service facilities with defects.

USSR Gosplan, USSR Gossnab, USSR Minchermet [Ministry of Ferrous Metallurgy], USSR Minlesbumprom [Ministry of Timber, Pulp and Paper, and Wood Processing Industry] and other ministries have been ordered to furnish construction organizations on a priority basis lumber, metal products, sanitary engineering equipment and other types of physical resources for housing and public works construction.

The attention of ministers of construction ministries is called to their personal accountability for fulfillment of planning targets for construction of housing, children's preschool institutions, general schools, vocational and technical schools, hospitals and polyclinics.

A recommendation has been made to councils of ministers of union and autonomous republics, ispolkoms of soviets of people's deputies, and ministers and departments that in organizing the construction of housing and social and consumer service facilities they be persistent in achieving a uniform pace of their activation, well-rounded development of cities and settlements, and improvement of the quality of urban development and architecture. That they pay more consideration to the interests of industrial enterprises in the distribution and geographic location of housing, allocate housing promptly in residential buildings whose construction they have shared in financing.

That they take additional measures to guarantee preservation of the housing stock, energetic performance of projects to modernize it and to improve the quality of major repairs of residential buildings. That they make fuller use of the possibilities for reconstruction and addition of amenities to private housing of the workers, kolkhoz members and employees. That they not allow unjustified demolition of sound housing stock, its withdrawal for other purposes and other violations which bring about a reduction of the growth of housing.

The CPSU Central Committee deems it necessary that USSR Gosplan specify in the plans for 1984 and 1985 the volume of construction of housing and social and consumer service projects in proportions which ensure unconditional fulfillment of the assignments of the 5-year plan for economic and social development of the USSR in the period 1981-1985. It is recommended that beginning in 1984 it assign to construction ministries targets in plans of contract work for activation of housing and social and consumer service facilities.

In drafting the Basic Directions for the Economic and Social Development of the USSR Over the Period of 1986-1990 that it provide for further improvement of construction of housing and cultural and consumer service facilities, substantially raise its quality, retool plants for large-panel and wood housing construction using new manufacturing processes and equipment, as well as for substantial expansion of the production of effective building and finishing materials.

USSR Gosstroy, Gosgrazhdanstroy, USSR Gosplan, construction ministries and departments have been set the task of drafting and carrying out in the 1983-1985 period specific measures to reduce the cost of housing and public works construction, raise the level of industrialization, achieve conservation of physical and labor inputs, as well as measures to speed up conversion of housing construction to progressive housing design series.

Central committees of the communist parties of the union republics and party kraykoms, obkoms, okruzhkoms, gorkoms and raykoms have been ordered to see that purposive organizational work is done, to make monitoring more effective, and to be more exacting toward personnel for fulfillment of plans for construction of housing and cultural and consumer service facilities. Party, soviet, trade union and Komsomol organizations are to maintain a constant focus on solving this problem. Every case of failure to meet construction deadlines for housing and public works projects is to be regarded as a serious breach of party and state discipline.

The recommendation has been made to party organizations that they invigorate mass political work among construction workers, make socialist competition more effective, and achieve large-scale introduction of the work-team contract and the know-how of progressive collectives and production innovators.

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BUILDING MATERIALS

UDC 666.94:658.5:301.085

DEPUTY MINISTER REPORTS ON CEMENT INDUSTRY

Leningrad TSGMENT in Russian No 1, Jan 83 pp 1-3

Article by V.I. Kushchidi, deputy minister of the USSR Construction Materials Industry: "Technical Reequipping of Enterprises and Economies in Use of Resources -- A Vital Task of the Cement Workers"

Text The cement industry workers, similar to all Soviet people, welcomed with a great amount of enthusiasm the decree of the November (1982) Plenum of the CPSU Central Committee entitled "Plans for the State Plan for the Economic and Social Development of the USSR and the State Budget of the USSR for 1983. This decree was the subject of a speech delivered during the plenum by the general secretary of the CPSU Central Committee Yu.V. Andropov and also the materials of the 7th Session of the USSR Supreme Soviet, 10th Convocation.

During 1981 and 1982, in fulfillment of the decisions handed down during the 26th CPSU Congress, the cement workers carried out work aimed at increasing the production of goods, improving their quality, achieving economies in the use of material, fuel-power, labor and other resources, modernizing the equipment in use and reequipping enterprises and also directed towards implementing the USSR's food program, adopted during the May (1982) Plenum of the CPSU Central Committee.

During this 2 year period and compared to the same period for the 10th Five-Year Plan, 2 million more tons of cement were produced, the number of enterprises which did not fulfill the annual plan fell sharply (from 43 to 9) and an increase was achieved in the branch's fixed productive capital. The plan for raising labor productivity, increasing the volume of products sold and other technical-economic indicators was fulfilled. The average hourly productivity of the furnaces was raised from 33.2 to 34.2 tons and the coefficient for their use increased; for 5 X 185 meter rotary furnaces it was raised from 75.7 to 76.6 percent.

Construction work is being completed at the Krivoy Rog plant on a highly productive automated technological line for the dry method of cement production, one that is equipped with a miniature rotary furnace with a reactor-decarbonizer. New capabilities are being placed in operation at the Nikolayevka and Savino Plants. A rotary furnace at the Slanty Plant has been modernized; it has been equipped with a reactor-decarbonizer of domestic design.

Technical innovations aimed at raising production efficiency have been developed and introduced into operations. Immediately following the Akmyantsementas PO, a method for intensifying the operations of furnaces through the pneumatic delivery of ground limestone to the caking zone was introduced into operations at the Lipetsk and Navoi Plants. As a result, at Furnace No. 3 at the Lipetsk Plant the specific fuel consumption was lowered by 5 kg per ton and the hourly productivity of the furnace unit was increased.

At the Kamenets-Podolsk and Zdolbunov Plants, a technology was introduced for obtaining portland and slag portland cement using priming ash and delivering it directly to a cement mill based upon a relatively simple system. This technology has made it possible to lower the consumption of electric power without lowering the quality of the cement.

Work has been completed at Furnace No. 3 of the Katav-Ivanovsk Plant with regard to mastering a system for the additional combustion of a gaseous fuel in a shaft-gas flue. In the process, the productivity of the furnace increased by more than 5 tons per hour and the specific fuel consumption decreased by 2.6 percent.

An inter-departmental committee adopted a twin-channel fuel oil injector which makes it possible to regulate the supply of initial air, the angle of opening of the jet and the degree of dispersion of the fuel oil. Its introduction at the Akmyantsementas PO made it possible to burn fuel oil with a coefficient of surplus air of 1.05-1.07, with the proportion of initial air increasing to 15 percent. And at the Kamenets-Podolsk Plant, jointly with the Scientific Research Institute of Gas of the UkrSSR Academy of Sciences, a unit was introduced which makes it possible to burn liquid fuel either together or separately in a more economic manner.

A complex of work has been completed at the Novospasskoye Plant for the introduction of a closed milling cycle at a 4 X 13.5 meter cement mill. This system includes a technically improved separator. In the milling of Mark 500 portland cement, the productivity of the mill reached 100 tons per hour.

In conformity with the plan for developing science and new equipment in the branch, six ASUTP's /automatic system for controlling a technological process/ have been introduced into operations, the production of highly durable cements involving the use of softeners has been mastered, rolled armored lining is being introduced on an extensive scale and work has been completed for the most part on converting the supports for 5 X 185 meter furnaces over to antifriction bearings.

The collectives of enterprises have launched a socialist competition for worthily preparing for the 60th anniversary of the USSR. More than 70,000 workers and 2,000 brigades are participating in it. Our leading workers and the collectives at the Vorkuta, Podgorenskiy, Lipetsk, Bezmein, Karachayevo-Cherkessk, Sebryakovskiy, Ulyanovsk, Novotroitsk, Topki, Teploozersk, Ivano-Frankovsk, Sas-Tyubinsk and Rybnitsa Plants, the Spassktsement PO, Yakutpromstroymaterialy, Volkovysktsementnoshifer, Akmyantsementas and the Zhigulevsk and Angara Combines are all in the vanguard of this competition.

Fine operational indicators have been achieved by one of the leaders in the socialist competition -- the Akmyantsementas PO.

Compared to 1975, the volume of marketable goods produced here has increased by a factor of 1.2 and the number of industrial-production personnel has decreased by 350. Labor productivity during this period increased by 25 percent and exceeds the average branch level by a factor of 1.5.

These indicators were achieved for the most part owing to the ahead of schedule mastering of the planned capability for the 5 X 185 meter furnaces. The average annual output of clinker for each furnace is 570,000 tons, or considerably more than the average for the branch. The dissemination of the operational experience of these furnace units, accumulated by the Akmyantsementas PO, will make it possible to supply the country with more than 3 million additional tons of cement.

Compared to 1975, the specific fuel consumption at the second production complex of this association fell by more than 8 kg and the overall savings in fuel and electric power amounted to 18,600 tons and approximately 26 million kilowatt hours respectively. The quality of the output is improving with each passing year and at the present time every other ton of cement being produced at the association bears a high certification -- the State Badge of Quality.

Such successes have become possible owing to harmonious efforts on the part of the association's entire collective, the party organization and the general director -- a wonderful organizer, Leopold Vladovich Pyatravichus. Similar to other enterprises, this association also has its own difficulties. Production operations are carried out using fuel oil and tripoli earth. Here there is also a shortage of freight cars needed for shipping the cement. The achievements would not have been realized were it not for the economic sharpness, socialist enterprise and great sense of responsibility aimed at developing efficient labor organization, solving the social problems, creating supplies of raw materials and fuel and developing correct relationships with allied enterprises and organizations.

This is why the Akmyantsementas PO /production association/ is performing in a stable manner and honorably fulfilling its tasks for the five-year plan with regard to raising the efficiency of production.

During the first 6 months of 1982, a slump developed in the branch's operations. The plan was underfulfilled by approximately 800,000 tons of cement and more than 1 million tons of clinker. Twenty seven enterprises failed to fulfill their plans. Unfortunately, this number included facilities which had performed in a stable manner earlier: the Mikhaylovtsment PO, the Dneprodzerzhinsk, Krivoy Rog, Olshanks, Ust-Kmenogorsk, Kant, Punane Kunda Brotseny Plants and the Zdolbunov and Amvrosiyevka Combines. For the most part, the reasons for non-fulfillment of the plan by these enterprises derived from objective factors -- interruptions in the supply of fuel, electric power, a shortage of freight cars for shipping finished products and short deliveries of gypsum, slag, tripoli earth and other raw materials.

Unfortunately, a partial correction of the plan at the beginning of the fiscal year did not bring about a balance with the actual logistical resources

allocated. Thus the branch performed in an unstable manner during the second half of 1982. The ministry considers the solving of this problem to be one of its chief tasks.

The tense year of 1982 revealed that there are basically two difference approaches for overcoming the difficulties: a spirited, business-like and energetic one or a listless, passive and indifferent approach. This period became a serious test for the leaders and it revealed their capability, under the new working conditions, to find the appropriate forms and methods for management.

For example, the Sebryakovskiy Plant commenced operations under the new conditions. In the face of limitations in the supply of fuel, the work of the furnace department is being held up; the remaining stages are operating normally, the supplies of slag and raw materials are continuing to increase, cement is being produced based upon the supplies of clinker, the finished products are making containers available and when necessary the furnaces are being repaired.

The supplies of clinker increase when the limitations on the fuel supply are removed. The limitations on the supply of electric power -- serve to reduce the output of cement, produce an accumulation of clinker and to remove silage from the finished products. If there is a shortage of freight cars for shipping the cement -- the work of the milling department is held up, but raw materials and clinker continue to accumulate.

The main administrations and union republic ministries must activate the study and dissemination of the leading experience of the Akmyantsementas PO and the Sebryakovskiy Plant and they must obligate the enterprise leaders -- particularly the leaders of backward enterprises -- to study in a thorough manner, during trips to the various areas, the organization of production at these plants and to develop and approve plans and measures for rapidly eliminating areas of economic neglect and organizational shortcomings.

Although the number of backward enterprises has decreased at the present time, their number still includes the Checheno-Ingush, Kuznetsk, Yashkino, Nikolayevsk, Chernorechenskiy and Razdan Plants.

Unsteady work with disruptions has been carried out at the Slantsy, Kant and Kamenets-Podolsk Plants and at the Amvrosiyevka Combine.

These enterprises were responsible for non-fulfillment of the plan for the second year of the 11th Five-Year Plan. They are characterized by an absence of order in their production operations and by serious infractions of the technological and production discipline and the rules for the technical operation of the equipment. Work involving considerable deviations from the technological chart, in the absence of normative supplies of raw materials and fuel and with burnt out spots on the furnaces became common occurrences here.

The director of the Shchurovskiy Plant A.P. Alekseyev, the director of the Karachayevo-Cherkassy Plant V.S. Platonov, the general director of the Vol'skstsement PO S.Ye. Osipenko and the director of the Bekabad Plant A.S. Ibabekov all invested a great amount of labor in bringing about improvements in the branch.

If we compare the shortcomings in the management of some enterprises and the external factors, then an evaluation of the reasons for non-fulfillment of the plan reveals that the internal shortcomings are decisive.

During the 26th CPSU Congress, it was pointed out in the Summary Report that "under modern conditions, the importance both of discipline and personal responsibility increases many times over. Especially the responsibility of the economic, soviet and party leaders". This applies very definitely to our branch and to the leaders of backward enterprises.

One indicator of stable organizational work is that of rhythmic production operations.

As a rule, the backward plants carry out up to 45 percent of the monthly program during the third ten day period. For production operations, such arrhythmia constitutes a grave ailment that must be dealt with in a serious manner.

An equally serious area of neglect is the unplanned stopping of equipment; this leads to large losses in output and unproductive expenditures.

During 1981-1982, the unplanned idle time of furnaces throughout the branch amounted to 200,000 machine-hours and that for mills -- to 220,000 machine-hours. As a result, more than 2 million tons of cement and approximately 1.3 million tons of clinker were not produced.

The principal causes of such stoppages are poor servicing of the equipment, violations of the rules for technical operations and low quality of spare parts and repair work carried out. Owing to violations of the PTE /technical operation rules/, stoppages occurred in 45 percent of the furnace and 56 percent of the milling units, because of poor quality equipment and spare parts -- 15.3 and 13.5 percent respectively and owing to poor repair work -- 16.3 and 4 percent.

Many unplanned stoppages occurred at the Novorostsement, Nikolayevsk and Balakleya Combines, the Vol'skstsement PO and at the Chernorechenskiy Plant. Rather alarming is the fact that recently a trend has been noted towards an increase in the duration of repair operations.

In order to solve this problem, technological and production discipline should be intensified, the personnel who service the units should constantly undergo training and following each such stoppage the situation should be analyzed immediately and an appropriate decision made.

The repair service at the plants should be strengthened. As yet, the decision to increase the number of repair personnel at an enterprise to 30 percent has still not been carried out and yet in those areas where this has been accomplished the situation with regard to repair work has improved considerably.

During the November (1981) Plenum of the CPSU Central Committee, emphasis was placed upon the fact that during the 11th Five-Year Plan the work rates for the

* Materials of the 26th CPSU Congress, Moscow. Politizdat, 1981, p 50.

renovation of equipment must be increased by a factor of 1.5 above those for the 10th Five-Year Plan. In addition to the problem of retaining personnel, this is of priority importance to the cement industry. The equipment has become obsolete, especially the furnace units (with the exception of 170 and 185 meter furnaces for the wet method of production and the 75 and 90 meter dry method furnaces) and the milling and crushing equipment, the inter and intra-departmental transport vehicles and the mining-transport equipment have all become badly worn out. The amortization period for the operation of this equipment is coming to an end; over the past 3 years, approximately 170 cement and raw material mills have been replaced. This work will be continued in the future.

Each plant must have an efficient program for the replacement and modernization of obsolete and outdated items of principal and auxiliary equipment. In this regard, the republic ministries and main administrations must undertake special programs aimed at raising the coefficient of use of equipment, intensifying production and ensuring stable operations.

I would like to direct attention to such approved solutions for modernizing the furnaces as the introduction of special bands and concrete-cast iron plates for lining the catenary zones of furnaces, the installation of rolled armored lining in the mills and so forth.

Notwithstanding definite improvements in the work of keeping the plants supplied with spare parts, some of these parts are still in short supply. This includes screens and partitions for mills, the wheels for travelling bucket cranes, parts for solids pumps, the bottoms of small mills and loading units for concentrates. Here the plants require assistance from Minstroydormash (USSR Ministry of Construction and Road Machinery Manufacture) and the ministry's Glavremmekh.

Violations of the technological chart norms, which are still taking place, must be eliminated entirely at the enterprises.

For example, the norms for moisture content and sludge supplies are being violated at the Balakleya and Olshanksa Plants. The Nizhnetagil'skiy Plant tolerated shipments of cement which in terms of certain indicators did not conform to the standard requirements.

A reduction in natural fuel expenditures is being achieved in a planned manner throughout the branch. But we have still not truly organized this work. A great deal is being said and plans and measures are being prepared, but we still lack lively and daily work involving the participation of workers and engineers.

From year to year, including 1981-1982, the branch is failing to adhere to the norms for specific fuel expenditures for the production of clinker and the drying of additives.

Fuel is being handled in a very poor manner at the Chernorechenskiy, Yashkino, Olshanksa, Navoi, Akhangaran, Bekabad, Kuvasay, Kaspi, Rustavi, Kant and Dushanbe Plants and at the Novorostsement and Amvrosiyevka Combines.

The reasons for the above -- non-rhythmic operation of the units, violations of technological discipline, high moisture content in the sludge and interruptions in supplying the furnaces with sludge and fuel.

The ministry achieved a reduction in the cost of a sulphite-yeast thinning agent. A requirement now exists for expanding the use of this thinning agent.

Inspections have revealed that some enterprises are using petroleum products in an inefficient manner and tolerating over-expenditures and inflated norms. In addition, serious shortcomings are being noted in their accounting and reporting operations. In some areas, the fuel is not being discharged from the railroad tank-cars in a timely or complete manner. At the Krichevtsementno-shifer PO, the acceptance, issuing and storage of petroleum products are being accompanied by great losses, control over preventive maintenance work and the servicing of motor vehicles has not been organized and during the winter up to 0.5 tons of fuel were expended in an unproductive manner for each motor vehicle owing to the absence of pre-start-up heating arrangements. Such losses were uncovered at the Amvrosiyevka, Kant and Akhangaran Plants.

Nor are economies to be realized only in the case of power resources. The use of additives, gypsum and cinder for purposes other than those originally intended cannot be tolerated. Gypsum has been written off for no valid reason at the Shchurovskiy, Lipetsk, Topki and Razdan Plants. The Belgorod Plant expended 20,000 tons of granulated slag for the repairing of roads and for satisfying other requirements. Such work cannot be tolerated today!

The institutes must make a contribution towards the national tasks of achieving economies. It is not proper when, under conditions involving a limited supply of electric power, cement is unloaded with the aid of a compressor having a productivity of 200-250 cubic meters per minute. Yet the unloading requires only 20-30 cubic meters of compressed air per minute. Under the new conditions, less productive machines are required. In addition, the institutes must examine (in the interest of increasing) the productive capacities for the raw materials and finished products and submit their proposals for examination by the ministry.

A guarantee for success consists of working with the personnel and training them in a spirit of achieving maximum economies. The system for organizing production, planning and incentives must be reexamined at each enterprise and directed towards realizing economies.

One very important problem must constantly be the focus of attention -- improving the working and living conditions of the workers. Concern for man is the foundation for the social-economic policies of our party and state.

The task of the cement workers is to reduce personnel turnover to a minimum. With each passing year, it becomes more difficult to solve this task since the problem of labor resources is becoming more acute.

The plan for the social development of each enterprise must be carried out in a very strict manner. The culture of the working positions must be raised constantly. Housing, recreation bases, palaces of culture, professional-

technical schools kindergartens and nurseries must be built -- everything must be done to ensure that the personnel sense that concern is being displayed for them, enabling them to proceed with their work in a fine mood. Only then will it be possible to create unified collectives capable of solving complicated production problems. Our enterprises of a high culture serve as a fine example in this regard: Angarsk, Sebryakovskiy and Timlyuyskiy Plants and the Akmyantsementas PO.

Similar to all Soviet people, the cement workers welcomed with a great amount of enthusiasm the decisions handed down during the May (1982) Plenum of the CPSU Central Committee concerning the food program of the USSR for the period up to 1990 and the measures for implementing it.

We have undertaken actively to create agricultural departments at the enterprises. Pigsties have been built at the Voskresensktsment PO and at the Vorkuta, Savino and other plants. Last year, construction work was completed on hog raising farms at several other enterprises and more than 30,000 square meters of hothouse space for the year-round growing of vegetables were placed in operation.

These subsidiary farms at enterprises must be viewed not as a temporary measure, but rather as an important aspect of the country's long-term food program. Thus the construction of these agricultural departments must be carried out in a thorough and high quality manner, at a good technical level and they must involve the use of modern means of mechanization and automation.

We can be assured that the cement workers will achieve radical improvements in the branch's operations and that they will ensure the fulfillment of the production plan and the socialist obligations undertaken for 1983. By their labor, they will make a worthy contribution towards successfully carrying out the decisions handed down during the historic 26th congress of our party.

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CSO: 1821/83

BUILDING MATERIALS

LITHUANIAN CONSTRUCTION INDUSTRY TO CONSERVE BUILDING MATERIALS

Vilnius SOVETSKAYA LITVA in Russian 18 Jan 83 p 1

Article: "Improving the Regime for Economies in Use of Construction Materials"

Text The Central Committee of the Communist Party of Lithuania and the Council of Ministers of the Lithuanian SSR have adopted the decree entitled "Some Measures for Increasing Economies in the Use of Material Resources in Construction."

The Central Committee of the Communist Party of Lithuania and the Council of Ministers of the Lithuanian SSR have taken note of the fact that workers attached to enterprises of the construction industry have performed a definite amount of work concerned with carrying out the decisions of the 26th CPSU Congress and the decree of the CPSU Central Committee and the USSR Council of Ministers entitled: "Intensifying Work Concerned With Achieving Economies and Ensuring the Correct Use of Raw Material, Fuel-Energy and Other Material Resources."

As a result of measures carried out by the construction ministries and departments and planning organizations, economies on the order of more than 74,000 tons of cement, almost 60,000 cubic meters of lumber and other materials have been realized since the beginning of the five-year plan.

At the same time, many ministries and departments are not devoting proper attention to those problems concerned with lowering the material-intensiveness of construction operations. Insufficient engineering forces are being employed for solving these problems and the experience of leading collectives is not being disseminated. Great losses are being tolerated at the construction projects in construction materials, structures and parts and a great amount of time and materials is being spent for the purpose of eliminating waste and correcting the mistakes of the planners. Losses in cement, glass, wall materials and other material resources occur during the production process and also during transport and storage operations.

It is mentioned in the decree that one of the most important tasks of the ministries and departments engaged in construction work and in the production

of construction materials, products and structures, municipal and rayon committees of the Communist Party of Lithuania, municipal and rayon executive committees, construction organizations, enterprises of the construction industry and the construction materials industry, scientific-research and planning institutes, their primary party, professional trade union and komsomol organizations -- is that of further reducing the materials-intensiveness of construction and increasing the economies in the use of cement, glass and other material resources.

In conformity with the tasks established for 1983, the ministries and departments are obligated to develop and implement, within the planned periods, specific measures for each subordinate association, enterprise and construction organization aimed at achieving thrifty consumption of construction materials, products and structures.

The following reductions in the consumption of materials must be achieved in construction in 1983: cement -- 5-7 percent, glass -- 7-8, rolled roofing material -- 3-4 and slate -- 2-3 percent. These reductions will be achieved by means of improvements in the planning solutions, the introduction of leading experience into construction practice, improvements in the technological processes and by reductions in losses, waste and unproductive expenditures. By 1985 the production of a concrete solution involving the use of plasticizing additives must be raised to not less than 60 percent of its overall use. At the same time, greater control must be exercised over the expenditure and storage of construction materials at construction sites, order must be restored in the storehouses for inert materials at enterprises for precast concrete and reinforced concrete products and concrete solution units and the storage of these materials by fractions must be ensured.

The Ministry of the Construction Materials Industry, the Vilnius and Shyauliyay Branches of the Baltic Railroad and those ministries and departments which are consumers of cement must undertake measures aimed at improving the use of the pool of cement-carrying freight cars, such that commencing in 1983 the transporting of cement will be carried out as a rule in special cement-carrying freight cars or in packaged form in boxcars. The Ministry of the Construction Materials Industry will ensure strict observance of the system employed for loading operations when use is made of cement-carrying freight cars and those ministries and departments which are consumers of cement -- the timely unloading, cleaning and delivery to the railroads of freight cars which are in good operating condition.

In 1984, the Ministry of Construction must ensure the placing in operation of capabilities for the production of 6,000 tons of concrete super-plasticizers annually and jointly with the Ministry of the Construction Materials Industry it must ensure, during the first 6 months of 1985, the placing in operation at Kedaynys of a department for the annual production of 60,000 tons of gypsum cementing material.

Gosstroy must reexamine the planning-design solutions for standard and repeatedly used plans for buildings and installations, for the purpose of lowering the materials-intensiveness, and it must develop measures for achieving more extensive use of gypsum and gypsum-concrete products at construction sites.

Gosplan, Gosnab, the Ministry of Trade and Litpotrebsoyuz are obligated to expand the sale, in the established manner, of construction materials and to ensure the allocations for this purpose of brick, lime, stone, gravel, crushed stone, sand and other local construction materials, in quantities sufficient to satisfy the requirements of the population.

The Ministry of the Construction Materials Industry, the Ministry of Construction, the Ministry of Rural Construction, the republic's Litmashkolkhozstroy Association, the Ministry of Municipal Services, the Ministry of Consumer Services, the Ministry of Land Reclamation and Water Resources and the Ministry of Motor Transport and Highways must implement measures at their subordinate enterprises aimed at increasing the production of brick, lime, non-metallic and other local construction materials and also products and structures for sale to the population.

The party, soviet, professional trade union, komsomol and administrative organizations must intensify their work aimed at mobilizing the labor collectives towards achieving economies in the use of material resources in construction, eliminating unproductive losses and creating in the collectives an atmosphere of intolerance of all incidents of mismanagement in the consumption of material resources.

Gosnab, Gosstroy and the People's Control Committee are obligated to increase their control over the proper storage and thrifty consumption of construction materials, products and structures at enterprises, bases, storehouses and construction sites and to hold those individuals guilty of spoilage and over-expenditures of materials strictly accountable for their actions.

In summarizing the results of the socialist competition, the indicators for achieving economies in the use of material resources in construction are taken into account and more active use is made of the various forms for issuing material and moral incentives to those collectives and individual workers who achieve the best results in economizing in the use of resources.

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BUILDING MATERIALS

CONSTRUCTION EXPERTS DEBATE CAUSES OF CEMENT WASTE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Jan 83 p 2

[Article by special correspondent Yu. Bychek: "From Words to Action"]

[Text] The economical expenditure of material-technical resources is a question of prime importance. It has been given much attention in the decisions of the 26th Party Congress and the November (1982) Plenum of the CPSU Central Committee. Party documents urge all workers to have a careful, thrifty attitude toward the national wealth--bread, metal, lumber. Cement is one of the top items on this list. But unfortunately its losses are so great that in many cases it is not only difficult to call the attitude toward the expenditure of this most valuable material thrifty, but hardly even basically respectful. This matter was discussed in the articles published by SOTSIALISTICHESKAYA INDUSTRIYA on July 1, 3, and 4, 1982 under the heading "Where and How Cement is Wasted."

The editorial staff conducted a "roundtable" on the problem. Participating in the exchange of opinions were leading workers of the USSR Gosstroy, USSR Gosnab, interested ministries and administrations, scientific-research institutes, and construction industry enterprises.

"Everything Is Right, But It's All Wrong..."

Isn't this a paradoxical formula? But it has turned out to be the unique motif of the presentations given by numerous conference participants. Everyone understood that they had gathered not for the purpose of clarifying who was most at fault, but that the purpose of the discussion was entirely different--to determine the specific means of combatting mismanagement and to agree upon joint action in order to maximally reduce cement losses. And yet the "roundtable" was not round for long. The sharp corners became apparent with all the swiftness of a photographic print in fresh developer.

To a large degree the exacerbation of the discussion was facilitated by the position taken by the very first speaker--Deputy Minister of the USSR Ministry of the Construction Materials Industry V. Kushchidi.

Since, he said, the cement losses for consumers were significantly higher than for manufacturers, the talk should center on mismanagement at construction sites and enterprises within the precast reinforced concrete industry.

As concerns the question posed by the newspaper concerning underloading during cement shipment, this in his words was an exceedingly rare, even exceptional occurrence. For every underloaded car there are nine overloaded ones.

The high temperature of cement loaded into cement truck hoppers is also inevitable, and GOST does not limit it. It is difficult to count on the creation of refrigeration installations. Extensive additional capital investments are required. Renting out specialized rolling stock, and particularly on balance to cement plants or construction organizations, in order to extend the life of the cars is also inexpedient, since of the ten days required for the full turnover of a car from loading to loading, the car spends less than a day on the access route of the supplier plant and the consumer organization.

In short, the ministry refuted practically all the proposals and wishes presented by the authors of the materials published in the newspaper. Let us not be hasty with our evaluation of the objectivity and self-criticism of the position taken by one of the directors at the USSR Minstroymaterial. However, it is natural that such "blind defense" elicited an appropriate reaction from other "round-table" participants.

"Short loads are not the exception, but the rule," said Deputy Minister of the USSR Ministry of Construction of Heavy Industry Enterprises A. Kondrashov. And he proved this quite convincingly with the results of a check that had been made. At different locations on the same day, over four hundred cement trucks were weighed. The load shortage fluctuated from 0.8 to 4 tons. Consequently, on the average each car had a shortage of over two tons.

The same data were obtained independently by controllers from Minstroy, USSR Gosstroy, and the MPS [Ministry of Railways]. The conclusion: in computing the annual volume of production, the undersupply is expressed by a rather impressive figure--around four million tons.

"And in our computations", noted Yu. Sadakov, Director of the Glavstroyasnab, USSR Minstroy, "these mythical tons are moved into the column of real overexpenditure..."

"Not one million, as the cement producers believe, but six million tons are lost and overexpended at the fault of the building materials industry", summarized D. Pan'kovskiy, Deputy Chairman of the USSR Gosstroy.

Moreover, a significant portion of the cement is "eaten up" by the low quality of fillers used in the preparation of concrete. But in this case, along with the USSR Minstroymaterial, which supplies approximately 40 percent of nonmetallic materials, we must hold responsible the contracting ministries which have their own quarries, but supply non-enriched gravel.

An argument arose also concerning the temperature of the loaded cement. With enviable assuredness the cement producers insisted they are not breaking any regulations. Glavzapadtsement director V. Belogurov even proposed organizing an investigation with the participation of consumers and railroad officials directly at the cement plants, even at the very Voskresenskiy plant, in order to be convinced of the inaccuracy of these claims.

"What is there to argue about, what is there to be convinced of?" wondered Deputy Minister V. Gin'ko of the Ministry of Railways. "That hot cement burns out the linings in the unloading hatches of the hoppers? That after this they either leak or get stuck? And can be opened only with a sledgehammer? In only six months we had to formulate over two thousand acts on the breakdown of hoppers! Maybe we really should think seriously of transferring cement cars to the care of cement producers? Their attitude would probably be different to their own cars. This does not mean that the MPS is shutting itself off from hoppers. We have presented our subdivisions with the task of repairing the entire pool of cement carriers in the shortest possible time. And, no matter how hard it is for the repairmen, this task is being carried out."

Deficit or Excess?

A special question concerns the use of high-grade cements. It has arisen far from accidentally. Widespread use of high-strength concretes in construction is one of the main directions in technical policy for construction. This is an effective means of reducing the weight of buildings and structures as well as the costs of reinforced steel. In the opinion of the USSR Minstroymaterial, the cement of grades "500" and "600" produced in the country is sufficient to annually produce around 50 million cubic meters of high-strength reinforced concrete constructions. But today slightly more than 1 mil m^3 are being produced.

In actuality, the situation is difficult to explain at first glance. Why is it that the producers of reinforced concrete, while constantly complaining of the shortage of high grade cement, use that which is available, mildly speaking, not to its best advantage?

This is how they answered that question. The highest grade cement is shipped no less than once per quarter. But according to the supply graphs, reinforced concrete is shipped every day. And often the building industry enterprises have no choice but to manufacture crucial constructions using standard cement. However, in this case, it is necessary to almost double the cement expenditure in order to ensure the given strength of the product. Moreover, the construction manufacturers are not always sure that the grade of cement designated in the paperwork will be confirmed in the concrete. The difference between the documentation data and the actual activity of the cement is yet another channel for losses which are manifested at construction sites and building industry enterprises.

But even the cement consumers have a careless attitude toward it, to say the least. This was clearly demonstrated by A. Tariverdiyev, Assistant Director of the Administration on Building Materials, USSR Gossnab. Sixty thousand tons out of every million--six percent--are literally thrown to the wind and trampled into the ground during the storage of cement at random, so-called "adapted" warehouse type buildings. In the subdivisions of the union Minsel'stroy and Minvodkhoz, USSR Gossnab workers counted over three thousand such, pardon the expression, "warehouses." And here alone a minimum of half a million tons are irretrievably lost.

Only the unwillingness to be burdened by excess concerns can explain the fact that many producers of reinforced concrete (except for the plants of the USSR Minpromstroy and USSR Minenergo) do not use a long-known plasticizer--sulphite-yeast wash. Around 400,000 tons of this inexpensive and effective additive must be dumped by enterprises where it is a by-product of the main production. Meanwhile, the cement expenditure is five percent lower for concrete made with the use of this additive.

Without denying their own deficiencies and errors, the builders nevertheless did not pass up the opportunity to present opposing claims. The workers of the union Mintyazhstroy, for example, are firmly convinced that a fair portion of the losses which show up in official records as an overexpenditure are actually the result of incomplete planning. There is a gap between the norms for cement expenditure per million rubles of construction-assembly work (the USSR Gosplan plans funds for cement to the ministries according to this indicator) and the actual production expenditure norms per cubic meter of production. The "million measure" is necessary in planning. But the representatives of the contracting ministries feel that this averaged indicator requires corrective coefficients--for the output of particularly crucial products and construction and for instability of cement grade.

But will they help? Today builders bear the responsibility for overexpenditure regardless of who is actually at fault--they themselves or the cement suppliers. The introduction of corrective coefficients will regulate the overexpenditure, but there will be no one to answer for it. It would evidently be more prudent to establish an order under which the specific reasons for overexpenditure will be examined during the summary of the economic activity. Then economic sanctions may also be turned toward the true culprit. This, undoubtedly, will increase the responsibility of both the suppliers and the consumers.

Scientists Shrug Their Shoulders

And how does civil engineering science evaluate the situation which has arisen, what prospects does it see? Very gloomy ones, if we judge by the presentation given by L. Malinina, Director of the Laboratory at the Head Scientific-Research Institute on Concrete and Reinforced Concrete of the USSR Gosstroy.

"Dirty fillers," she said, "are not a new problem. Several years ago USSR Gosstroy required us to compile increasing coefficients to cement expenditure norms specifically because of this. And it is unlikely that we will be able to stop using them in the next few years--so great has been the lag in the development of the nonmetalliferous materials industry. Appreciable losses are also caused by increased temperature of the shipped cement, as well as the false setting associated with it. But in this case, too, we will not be able to remedy the situation soon."

In the opinion of L. Malinina, it is necessary to refine the "geographical" distribution of cement plants according grade rating and quality of the manufactured product. What is happening now? For example, the southern regions of the country located near Novorossiysk are saturated with grade "500" cement,

which is used here (for lack of anything else!) for literally all building needs --including even the preparation of low-grade masonry mortars. Meanwhile, construction sites in the Urals are making do with grade "300" Portland cement. This is equally non-economical for the manufacture of high-strength constructions, as well as for low-grade concretes and mortars. In other words in either case the absence of a choice leads to overexpenditure.

L. Malinina's next thesis was totally disheartening: there is, it seems, no reliable method at all for determining the grade of cement! Quick methods are rather imprecise and therefore do not go beyond the experimental stage. However, even the standard method provided by GOST with a 28-day cycle of concrete hardening yields a spread of one-and-a-half to two grades (difference in strength of 150-200 kilograms per square centimeter). At least in the laboratory directed in Larisa Alekseyevna such results in testing the same batch over a period of two to three months are not at all uncommon...

But how did such an incomplete method get into the state standard, in whose development L. Malinina herself actively participated along with colleagues from the NIIZhB [Scientific-Research Institute on Reinforced Concrete] and the NIItsement [Scientific-Research Institute on Cement]?

An interesting opinion was expressed by Professor S. Shestoporov, department chairman at the Moscow Roads Institute regarding this question.

"Currently at a number of plants," he proclaimed, "the possibility of compiling cement catalogs based on 17 construction-engineering properties is being studied experimentally. Such an approach--and this is already perfectly clear--makes it possible to most fully utilize the real activity of the cement, evaluating its quality not by grade, but by the hardening curve. This, evidently, should be included in the standard."

The idea, undoubtedly, is interesting. As S. Shestoporov pointed out, evaluation according to the hardening curve actually makes it possible to batch cement in precise accordance with the real activity shown in the tests of, for example, "390" or "425", and not by the grade of "400" regulated by GOST. This is also a savings, and a significant one.

Thus, we have traced the basic *peripetia* of the far from passionless exchange of opinions between the "roundtable" participants. The acuteness and uncompromising character of the discussion are the best testimony to the fact that the presentations in the newspaper evoked a keen response from all who are involved in solving the problem.

But here is the fact that puts one on the alert. In beginning this campaign, the newspaper presented a far from rhetorical and rather specific, practical question: how to stop the losses of the a most valuable construction material? By the logic of things, an exhaustive answer to this question should have been given by the conference participants--each according to his specific section. In fact, however, it turned out that in his positive programs the representative of each administration counted not so much on the internal reserves of savings as on the reserves of suppliers. We can't help but recall the simple

everyday principle that, they say, the axe is always sharper in someone else's hands!

As we see, even at the "roundtable" it was impossible to get away from a "departmental" approach to the problem. "Departmental" in the worst sense of the word, when the interlocutors, seeking out dust specks in the eye of another, try to hide even from themselves the splinter which has flown into their own eye. What is needed are specific proposals and actions by all the concerned ministries, administrations, institutions and organizations on the economy of cement. Not always to point at one's neighbor, not always to count up who has wasted the most. It is time to open an active account for economizing.

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